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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/539,020
Filing Date: June 15, 2005
Appellant(s): YAMAMOTO, JUN

Hui C. Wauters
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/1/2010 appealing from the Office action mailed 12/31/2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-10 have been rejected and are under appeal.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

6323147	Yamamoto	11-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 9 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6323147. Although the conflicting claims are not identical, they are not patentably distinct from each other because the catalyst obtained by the process according to claim 1 is encompassed by the catalyst as claimed in claim 1 of U.S. Patent Number 6323147.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 6323147).

Regarding claim 1, Yamamoto "147" teaches the process for producing a titanium containing silicon oxide catalyst (Col. 8, lines 31-60) with an average pore diameter for the catalyst material of 10 A or more, a pore size of 90% or more of the total pore volume of 5 to 200 A, a specific pore size of 90% or more, a specific pore volume of 0.2 cm cm3/g or more and a quaternary ammonia ion represented by the formula: [NR1R2R3R4] + where R1 represents a linear or branched hydrocarbon chain having 10 to 36 carbon atoms, and R2 and R4 represent an alkyl group having 1 to 6 carbon atoms.

Regarding the first step of claim 1, Yamamoto "147" teaches obtaining a solid containing a catalyst component and a template by mixing and stirring a silica source, a titanium source and a quaternary ammonia ion as a template in a liquid state (Col 8, lines 64 –67 and Col. 9, lines 1-2).

Regarding step two of claim 1, the component (solid) is removed from the template using a solvent extraction using a solvent to remove the template (Col. 4, lines 4-19).

Regarding step three of claim 1, Yamamoto "147" also teaches that after he catalyst is mixed with solvent for solvent extraction and the liquid portion separated, the catalyst can be obtained by extracting the catalyst layer with a solvent for washing (col.

4, lines 40-44) and teaches that a solvent used for washing is toluene (col. 7, line 50). Thus if toluene is used for washing after solvent extraction, this obviously results in a third step of substituting the solvent used for the extraction with a solvent which is substantially inert to a silylating agent used in a subsequent step, as claimed.

Regarding step four, Yamamoto “147” teaches heating the mixture for one hour under reflux with stirring and removing the liquid, which corresponds to the step of obtaining a silylated catalyst by subjecting the solid to the procedure of step three.(Col 7, lines 47-48).

Regarding claim 2, Yamamoto “147” further teaches washing with toluene which is the same solvent as used in step four of silylation (Col. 7, line 49).

Regarding claim 3, Yamamoto “147” teaches the use of a template which a quaternary ammonium ion of the general formula [NR1R2R3R4]+, where R1 is a linear to branched hydrocarbon chain having 10 to 36 carbon atoms, and R2 and R4 represent an alkyl group having 1 to 6 carbon atoms (Col. 10, lines1-7).

Regarding claim 4, Yamamoto “147” teaches the process of molding the solid containing the catalyst component (Col. 7, lines 45-52).

Regarding claim 5 and 6, Yamamoto “147” teaches the use of an alcohol for extraction. (Col. 7, lines 39-43). One of the preferred alcohols for this purpose is methanol (Col. 3, line 33-37).

Regarding claims 7 and 8, Yamamoto “147” teaches the use of a hydrocarbon such as toluene for substitution (Col. 7, lines 30-55).

Regarding claim 9, Yamamoto "147" teaches obtaining of a titanium-containing silicon oxide catalyst (Col. 7, lines 42-63).

Regarding claim 10, Yamamoto "147" teaches production of an oxirane compound resulting from the reaction of an olefin compound with an organic hydroperoxide in the presence of the catalyst (Col. 6, lines 1-3).

(10) Response to Argument

I. Appellant argues that Yamamoto (Yamamoto "141") does not disclose or teach the claimed third step of substituting an inert solvent for the extraction solvent. Appellant argues that Yamamoto teaches solvent used for washing is toluene but this washing is conducted after silylating in the Example in Yamamoto. Appellant argues that comparison between Example 1 and Comparative Example 1 of the specification shows improvement in reaction result because taking into account the large industrial scale production of PO (propylene oxide), the improvement shown equates to 12,000 tons across the world or 1,200 tons at one large production site. Appellant argues that the presently claimed invention exhibits unexpectedly superior results over Yamamoto.

In col 4, lines 40-45, Yamamoto "147" teaches that after mixing a catalyst with solvent, a liquid portion is separated by filtration, decantation and the like and teaches using a solvent for washing as well as that "termination of washing can be known by analyzing the liquid portion." Thus washing using a solvent after extraction but before silylation is suggested, and this washing would obviously substitute a different solvent for the solvent used for extraction. As to the solvent for washing being one inert to the silylating agent to be subsequently used for silylation, in Example 1 of the reference,

solvent that is used for washing is toluene. Although the washing in Example 1 is after silylating, the teaching is relevant because it teaches that toluene is used as a washing solvent. Thus, it would be obvious to one of ordinary skill in the art that the solvent for washing before silylation can also be toluene, which is set forth as a solvent inert to silylating agent.

Regarding Example 1 and Comparative example 1 in the present specification, there is no evidence of record that PO (propylene oxide) is produced on such large scale as argued such that the difference between 99.1% and 98.7 is significant. Further, the evidence shown in Table 1 of the present specification is not commensurate in scope with the claim. It only shows data for toluene at 80 ^{0}C for 1 hour and 40 minutes vs. N_2 at 110 ^{0}C for 8 hours. It is not clear whether the difference in reaction results is a significant difference as well as not clear if the difference applies to any substituting solvent or merely to toluene. Further, it is not clear if the only difference in Example 1 and Comparative Example 1 is the substituting with toluene. For example, it is not clear if the silylating treatments of the two Examples are the same.

II. Appellant argues that product-by-process Claim 9 is not obvious over Claim 1 of the 6,323,147 Patent for the reason that the third step of present Claim1 is not taught or suggested by Claim 1 of the Patent and that the catalyst obtained by the presently claimed process exhibits unexpectedly higher reactivity.

The nonstatutory double patenting rejection of stands. Appellant refers to the significance of the third step. However referring to the comparative data in the

specification, it is not clear whether the difference is significant. The evidence shown in Table 1 of the present specification is not commensurate in scope with the claim. It only shows data for toluene at 80 ^{0}C for 1 hour and 40 minutes vs. N_2 at 110 ^{0}C for 8 hours. It is not clear whether the difference in reaction results is a significant difference as well as applies to any substituting solvent or merely to toluene. Further it is not clear if the only difference in Example 1 and Comparative Example 1 is the substituting with toluene.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kenneth I. Vaden/

January 5, 2011

/Melvin Curtis Mayes/

Supervisory Patent Examiner, Art Unit 1732

Conferees:

/Melvin Curtis Mayes/

Supervisory Patent Examiner, Art Unit 1732

/Anthony McFarlane/